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AALBORG UNIVERSITY
DENMARK

Graphic notation

systematic Exercises for making Aural Scores

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GRAPHIC NOTATION

Systematic Exercises for Making Aural Scores

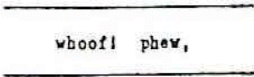
By Carl Bergstroem-Nielsen, Cand. Phil., Assistant Teacher at Music Therapy Dep., Aalborg University Center, Aalborg, Denmark.

There are five pieces on Fig.II

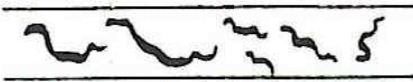
The first goes:



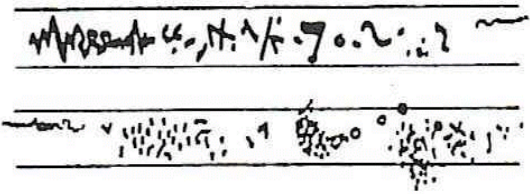
The second (Violin Concerto No.2) goes:



The third goes:



The fourth goes:



The fifth also goes.

This notation is from a review by Peter Riley of a Trans Museq cassette release in the British Magazine *MUSICS*, 6, 1976. The first section is a general description, the second section consists of verbal description, and in the following sections various sounds and textures are clearly depicted. The end of the notation might express the state you will find yourself in after long, concentrated work on these notations!

CONTENTS

PREFACE

FREQUENTLY ASKED QUESTIONS

GRAPHIC NOTATION AT AALBORG UNIVERSITY

WHAT IS GRAPHIC NOTATION?

AURAL SCORES

TWO "STORMS"

CREATE SIGNS!

DIVIDE INTO SECTIONS!

STYLIZE IT!

THE SYSTEM OF CO-ORDINATES AS A RULE OF THUMB

THREE COLUMNS

THE NOTATION IN ITS ENTIRETY

PITFALLS

SOME REQUIREMENTS FOR STUDENTS AND GOOD IDEAS

LITERATURE

ADVANCED SECTION

THE PRINCIPLE OF ZOOMING-IN

DIFFERENT Y-AXES

ALTERNATIVES TO THE SYSTEM OF COORDINATES

APPENDIX: DIAGRAM WITH 3 COLUMNS

PREFACE

This compendium is intended as a workbook to be used in courses for the teaching of graphic notation. It is not intended as an exhaustive statement but as a practical teaching aid. I am constantly revising these working materials and so this version is better considered as a work in progress rather than a finished product. The collection of examples that conclude the compendium may be older than the text. However, if the date is 07-04-92 or later, it is OK!

Because I think practical work during the courses should be allowed to take place without students being distracted by having seen others' solutions to the specific problems posed in the examples, I have deliberately not included certain examples of notations. The same consideration applies to theoretical material and general conclusions specifically pertaining to the various referential possibilities of coordinate systems. These are reserved for discussion during the courses.

Although the training in graphic notation at Aalborg University is focused on its utility in transcribing musical performances and improvisations, much of this material is simultaneously applicable to developing improvisation "recipes" or scores. When used in this way to generate music, you can allow yourself more latitude in terms of the form of the notation.

Thanks to the International Committee at Aalborg University who paid for it, the English language of this work was revised in November 1992 by Music

Therapist Kenneth Aigen, D.A., CMT.

FREQUENTLY ASKED QUESTIONS

- Is this about playing from pictures?

No, not in the graphic notation lessons. We sit down at tables and concentrate on describing other people's music. But I would be glad if this practise could also inspire to new kinds of playing out in real life!

- Is there a definite system of signs which we are to learn?

No, I rather believe that each person must develop his or her own way. Like there are several kinds of music, there should be several kinds of notation. Many visual expressions communicate in an immediate way. Also, the prescribed explanation of signs will ensure that the reader will not feel lost. I present a method to be used independently - cf. the section below this.

- Which are the skills we must acquire for the exam?

See the section below **SOME REQUIREMENTS FOR STUDENTS AND GOOD IDEAS!**

GRAPHIC NOTATION AT AALBORG UNIVERSITY

Graphic notation is studied in the Music Skills track of study in the Music Therapy program. (Other tracks, pursued simultaneously by the students, include the Music Therapy Skills track and the Music Therapy Theory track.) It is presented in this training as a tool for transcribing the improvised music of a music therapy session. Before graduating, each student must pass an examination in which music from a music therapy session is to be transcribed into graphic notation. Length of the music therapy recorded example used for this is max. 3 minutes.

In doing graphic notation, I believe that it is of primary importance to be in a free, creative space and to allow each piece of music to suggest its own context. Thus, I do not offer a specific symbol catalog or sequence of procedures to be followed mechanically. Still, rules of thumb exist to ensure that one can never become completely lost! I am emphasizing a method for consciously making explicit the considerations involved in generating interpretations and developing presentational structures. It includes concepts from the psychology of Fritz Perls and from musical parameter analysis.

WHAT IS GRAPHIC NOTATION?

Graphic notation can be broadly defined as musical transcriptions that consist of symbols other than those of the standard notation. This kind of notation

has been developed primarily by composers of the 1960s and 1970s with the function of providing performance scores for their compositions. Some of these innovators introduced new symbols into traditional scores while others created completely novel forms. Some of these scores, although consisting of novel symbols, are nonetheless highly systematic; others are more akin to free art forms. You can see this contrast in the two scores comprising Example I: Toshi Ichiyanagi's work "Sapporo" (1963) and Joergen Lekfeldt's "Madison Music" (1976).

Often, the character of the music necessitated the development of new symbols as when, for example, timbres rather than pitches were being indicated or when no specifically-metered or countable rhythm was intended to be conveyed by the composer. In these examples, to use standard notation as a tool would be like trying to eat soup with a fork! In other examples, composers wished to convey ambiguity or to invite the spontaneous, creative contribution of the musicians reading the score. In this way, the score functioned more as an improvisation recipe than as a strictly followed, rote procedure. (The present author has a paper on this topic with historical examples.)

Digression:

Of course, strictly speaking, one may hold that all notation is graphic in the sense that it is visual and that it is more correct to talk about "untraditional notations with room for free, creative elaboration" rather than "graphic notation." Yet, analyzed etymologically, the definition of "graphic" contains references to precisely the process that I want to highlight and that distinguishes my "graphic" notation from traditional scores. The entry for "graphic" from Gyldendals Fremmedordbog is as follows: (gr, **grafi'kos**, adjective for **gra'fe**, drawing, writing) as regards the art of drawing and writing; figurative; **g. representation** is illustrated by the means of drawing, mathematical curves and the like.

Consequently, in Greek, one did not draw a sharp distinction between drawing and writing; illustration and an artistic element is considered in both. With graphic notation, we are returning to the original, artistic unity of expression between drawing and writing.

AURAL SCORES

The original, non-traditional, performance scores inspired music educators and theory analysts to create corresponding aural scores. An aural score functions as a map of a sound landscape; it helps one to find and maintain one's bearings on a unique musical listening experience. I have found that creating the notation facilitates a deep absorption in a given musical experience and I have used such

notations as alternatives to verbal descriptions when recalling and conveying something about the music during a music therapy session, for example.

Example (2) shows representations of vocal music, including birdsong. Example (3)--a student's final examination--is taken from a music therapy session. Example (4) is an excerpt of the same piece used in (3), covering only the third and final section of the piece as indicated in (3). While the former uses the vertical axis to indicate volume, the latter, more traditionally, uses this axis to indicate pitch. Because these notations were done independently, it is interesting to note that each example uses similar symbols for claves and gongs. While (3) provides an overall summary, (4) goes into more detail; the ideal is to create a balance of both.

TWO "STORMS"

Here are two foundations for producing graphic notations--they can both provide initial inspiration as well as being resources for later use:

Motorical Storm

The "motorical" aspect refers to the movement of a body. All forms of writing and drawing can be seen as the tracks or "foot prints" of various physical movements in space. One way to enhance our awareness of the possibilities for expression here is to practice automatic writing. The idea is to close your eyes and allow your hand to follow its inclination in making movements of the pen on paper. No music is played here. Allow any movement tendencies that come to your body to be expressed and developed in the writing. The "doodles" that come out of this activity can have interesting, individual properties (just as individual name signatures do). This can be done without any fixed theme, as well as after contemplating a theme that may suggest an emotional state. Different themes will produce different pictures. Consider Example (5) whose theme is "agitated."

Symbol Brainstorm

What we refer to as writing consists of signs that gain their significance by convention--others can recognize a sign and say "Aha!" as with road signs. In understanding a sign, we detect its visual properties as we do with letters or pictures. In this brainstorm, the purpose is to be more aware of the appearance of the sign that of what it is meant to signify or represent. Be cognizant of anything that comes naturally and that may inspire you. Look in your own mind for a natural "sign language" and feel free to copy what is useful to you. This type of "theft" is allowed--even encouraged--for this is the way that language develops. Example (6) contains many different types of making lines from my own "inspiration" collection. They include: letters from different alphabets, symbols from weather maps, pictograms from American Indian sign language, works by the artist Kandinsky, and cutting patterns used for producing clothing. You might use these if you become stuck in devising the correct type of line for a given piece of music!

You should also brainstorm using writing utensils of varying color and

thickness so that you can produce different types of lines. What other tools might you think of to use?

CREATE SIGNS!

Signs are certain types of symbols that are 1) used several places in a notation, 2) replicable, 3) adapted to the music that one intends to describe, and 4) indicate something about the music. See Example (8).

It is possible to think in, and employ, both abstract and pictorial signs. Example (9) demonstrates varying degrees of abstraction. In this example the circle to the extreme right is more abstract than is the spiral and the roman numeral three (III) is still more abstract than the circle because of the conventions involved in establishing its referent.

DIVIDE INTO SECTIONS!

Listen in order to determine how many sections the music contains - and make them clearly different. This is an almost magical procedure for encompassing complex reality by means of descriptive language and concepts!

STYLIZE IT!

The map is not and should not be just as the landscape. It should be a schematization, the conscious lie which points the best to the truth! This is valid both for signs, dividing into sections etc.

Here is a story: in the book "The Little Prince" by Antoine de Saint-Exupéry, a pilot has been forced to land his plane in a desert, and he meets the little prince. The prince begs him to draw a sheep for him. After many drawings which are all refused by the prince, the pilot at last draws a box and says: "The sheep you wish for is inside that box" - and finally, the prince is satisfied.

THE COORDINATE SYSTEM AS A RULE OF THUMB

In traditional notation, we are accustomed to reading from left to right and to understanding height on a staff as corresponding to pitch. These assumptions can follow in this work and our rule of thumb is: Follow these conventions unless if you have reason to do otherwise.

In theory, all possible musical sounds can be represented graphically; in practice, this is a demanding, difficult and yet instructive task. In creating this type of notations, we come to more fully understand the various types of connections and relationships existing in a piece of music. (One recurring difficulty

that I can mention here is to give musical rests their full representation.)

While certain traditional relationships in music are obscured when represented on a co-ordinate system others are actually seen more clearly! Some MIDI-based computer notational systems (such as Macintosh Performer and Atari Cu-Base) are able to directly place on a co-ordinate system music played from an electronic keyboard. This offers new possibilities for the quick representation of performed music. One can even draw and modify the notation on the screen and have it instantly played. (This work was previously done in a very cumbersome manner utilizing stop watches and physically measuring audio tapes.) Look now at Example (7) which represents Bach's C Major Prelude. As we can see in the notation, the pianist is allowing the lowest notes to be sustained. The small "carats" in the bottom of the computer diagram represent velocities, that is, how fast the pianist hits the key and, by consequence, how loud a note that will result.

THREE COLUMNS

The system of three columns is used to examine the preliminary notation works of a beginning listener/notater. It is used to ensure that the listener simultaneously is 1) listening to and studying the music, 2) noticing his/her own reactions to the music, and 3) is reflecting on the connections between the two. With a good overview, one will be able to explain the development of the music in terms of the personal, conscious experience of the listener. This coherent musical explanation can then serve as the basis for further discussion on the therapeutic aspects of a musical interaction/improvisation.

Digression

In the model of human attention proposed by one of the founders of Gestalt Therapy, Fritz Perls, one can understand attention as functioning in three zones: the outer zone, inner zone and intermediate zone. (They may also be considered as levels of attention.) The outer zone consists of perceptions of the external world, the intermediate zone consists of ideas, fantasies and thoughts, and in the inner zone feelings reside. Direct contact occurs through the outer zone (outer reality) and the inner zone (inner reality). This contact always takes place in the present moment which constantly changing. The ideas, thoughts and fantasies are models of reality as it exists "inside the head." Many individuals tend to make too much use of the "head" and thinking and under-utilize the other two zones.

Listen to a piece of music repeatedly and make entries in the various columns as they occur to you. In the outer zone, one may include descriptions of the concrete sound including the instruments used and comments on various musical parameters.

Digression

In developing a theory of free improvisation it is essential to consider the sound whole in addition to looking at various parameters. The parameters referred to here are concrete, acoustic properties of the sound itself, not referring to how the sound is produced or experienced. Pitch, duration, timbre and volume can be precisely described for a given moment in the music. They also meet the qualification that they are continuously variable from one extreme value to the other with regards to one property (as compared to "intensity" for example, that is a continuous dimension but one which is often used as an experienced summary of impressions, not as one clearly defined sonic property). Here is a list of parameters from a group of students at Aalborg University Center:

LOUDNESS

DENSITY

TIMBRE (Dark-Light)

PULSATING--NOT PULSATING (REGULARITY)

DURATION

PITCH

Volume and Density are often experienced as being of greater importance in improvisations than is pitch. Some additional parameters demand more interpretive activity to become better defined. One example would be the dimension indicated by: CONTINUOUS-DIVIDED IN SECTIONS. These can be used if their referents can be mutually-agreed upon. Other parameters include: TIMBRE (Harsh-Soft); DEGREE OF CONTRAST; parameters oriented towards placing the source of the sound in the room; EVOLVING/DEVELOPING-STATIC; IMPROVISED MATERIAL-QUOTATIONS. Certainly this list is not exhaustive.

In the intermediate zone, one can take note of fantasies, ideas, images and stories. Entries in the inner zone can refer to concrete feelings as well as bodily sensations, such as joy, feeling a knot in the stomach, etc.

Utilize the space in the columns so that there are not large empty areas of white space and answer the questions in the appendix diagram under TSB I, TSB II, and Interpretation. (The remaining questions will be taken up later.)

Digression about TSB (previously called Musical Counter-transference:)

This phenomenon may be more safely called "Therapists' Subjective Bias" or abbreviated: TSB. TSB -- that is, the view of the client through the coloring of the therapist's personal "eye glasses"--is also operating in the experience of music. This is true even though we may not know or see the client whose music we may have an opportunity to portray graphically. If

.

we only come to know a person through his/her music, then some of the essential coloring must come from our experience of the music. Thus, on closer inspection, the fact that we may not know a client makes our efforts to interpret the music more fallible rather than less so. Understanding one's counter-transference in music therapy is essential to successful therapy because it has such a direct bearing on the process. After all, what reasons have we to expect that our experience of a musical improvisation will be the same as a client's? The forms through which our imagination is expressed functions as "footprints" in a sense, as it provides clues as to the nature of our TSB. By studying our TSB we can lessen its distorting impact and understand better where our imaginations were less than adequate.

THE NOTATION IN ITS ENTIRETY

The notation should be easy to overview, both as to its description of the sound being heard and in its bringing forward of an interpretation - "what I think is going on with the persons playing".

Sections may be given different appearances - for instance colors, changing signs (maybe a new explanation of signs for each section will be necessary - see ex. (3)). Their interpretation may be expressed for instance through their being placed inside simple drawings, through various types of frames (see exx. (3) and (11), additions of drawings, background colors, small texts as headings or like speech in cartoons (see exx. (3) and (11)).

One good possibility is making the interpretation a continuous story - that makes it easy to understand.

Do not be afraid of making signs and sections expressive, for instance making "soft" or "angry" sounds look that way, through their form!

Should you wish a firm rule of thumb: divide into two to five sections (concerning 3 minutes excerpts), put lines in between, make simple headings. And feel free to put some own ideas into it.

PITFALLS

1) Pitfalls where the reader or notater is overwhelmed by too much detail.

- A) Pseudo-differences in signs. This is a situation where one's handwriting leads to slight differences in signs and it cannot be determined whether or not these differences are intended. See Example (10)!!
- B) Too much detail without differentiating either one section from another or differences in their characterization.

2) Not providing the reader with enough detail so that any impression of the music is too vague and general to be useful.

- A) Analytical overviews presented in isolation without reference to concrete, audible aspects of the music.

SOME REQUIREMENTS FOR STUDENTS AND GOOD IDEAS

THE STANDARD MODEL: 2-5- sections divided by vertical dashes, a short title for each sections, different background colors or patterns and/or frames around their contents.

The notation must contain:

- time indication (with divisions for each 15 seconds)
- explanation of signs
- a short interpretative statement

As a rule of thumb there should be:

- horizontal time axis + a vertical axis representing pitch
- clear division into 2-5 sections
- division into persons and instruments, unless more than two people are playing. (But do make the notation integrated, use colors and signs).
- approx. two or three sentences about your experience of the client and what is happening in the music (be descriptive) on a separate sheet of paper, which could also contain the explanation of signs.

It is important that:

- the signs are to such a degree objectively describing the sound (the outer zone) that readers can follow the music.
- the design of the notation as a whole and its sections is so imaginative that it really projects your idea of a story being told or conveys impressions of other kinds. (Remember to use drawings, frames, backgrounds etc.). (It is also very good for signs to be imaginative, but the objective dimension - the outer zone - has priority, however.)

.....

At the examination, students have available to them graph paper, unlined paper and music paper with printed staves. They choose the type of paper they wish to use. The music example is presented to them on a CD, having also a time code that can be read from the CD player. Students must provide a variety of

writing implements. They must also explain the various signs employed. They are allowed to bring notes and literature.

Unlike with commonly known representational systems, the reader of a graphic notation will not easily or immediately distinguish between the formal aspects of a novel system and its contents, instead reacting to the whole of what is presented.

Only use a brief time on the columns and limit the length of the interpretive statement to a few sentences.

Demonstrating theoretical knowledge about therapy is not so relevant in grading these notations. What counts most is being able to graphically represent one's experience of the music. It is possible, if one wishes, to provide a brief overview of an entire piece of music through a relatively limited number of signs, especially if the score has many details that can be visually combined or melded through simple wholes.

Words can be employed in the graphic notation if their use is limited.

In case you get into trouble with getting finished before deadline, you are welcome to let sketches/notes accompany your paper.

.....

Here is my personal list for criteria to be used in evaluating graphic notations:

- lucidity for the reader in determining both sections, the character of the whole, and the relationship between the two
- quality of the signs
- how well the interpretation is expressed in the notation.
- a fairly dense coverage of the development of the music

LITERATURE

For comprehensive lists, please see
Experimental improvisation practise and notation 1945-1999. An annotated bibliography (2002f): Pdf edition (www.vbn.dk, search: bergstrøm-nielsen carl
See categories E (especially E1), H1 and H3.2 !

ADVANCED SECTION

The Principle of Zooming In

This is the principle that a given section of the music can be considered

from various distances. An exercise can be done that involves representing a few details of a given section individually, and then representing the same elements as part of larger wholes. This exercise demonstrates how one's perspective shifts concomittantly with the distance from which the perspective is taken and trains the ability to choose a proper level of detail given the time constraints one is working under.

Different Y-Axes

In Example (3), there are no pitches indicated but instead volume is represented on the vertical axis. One can imagine many more possibilities for representing different parameters.

Alternatives to the System of Co-ordinates

Other possibilities could include: dispersal-gathering; plurality-unity (tree structures); movements from/to a center . . . etc.

APPENDIX: Diagram w. three columns, etc. /music therapy example:

OUTER	INTERMEDIATE	INNER

TSB I (music): In which way is my perception of music (definition) affecting or limiting this description?

TSB II (general): In what way is my description of the client a description of myself?

Number of sections in the graphic notation:

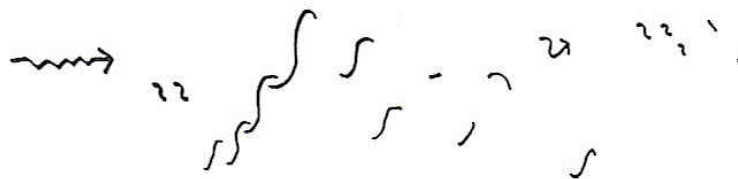
Remarks about drawing up the graphic notation (system of coordinates/vertical axis/alternatives):

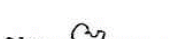

Interpretation: What do I think is going on in this music:

Remarks about the possible expression of the interpretation found in the graphic notation (for example: special signs, drawing up of sections, "framing" of sections, addition of images or cues, etc.):

 M8 • ————— •

(2)



	
HAVESANGER	MUNK
GARDEN WARBLER	MONK

VOLUME

STYRKE

- - HARMONIKA
 - - KLAVER
- PIANO

A LEAVE-ME ALONE-ROOM
ET U'-HIS-VERE-RUM
MED LID KIN JES HOLDE
DE "UDE"!
HARMONIKA
WITH SOUND I
CAN KEEP YOU
"AWAY"

- - HARMONIKA
 - - KLAVER
- PIANO

STOLTHED PRIDE



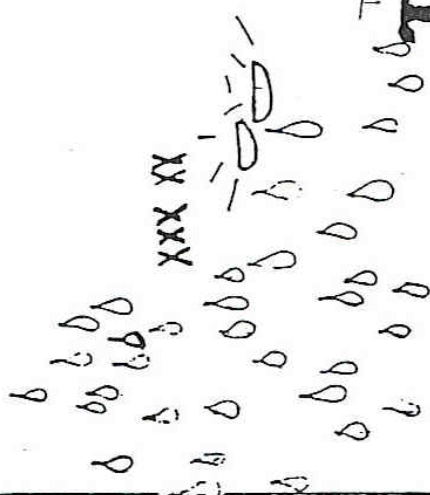
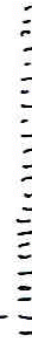
! wu? !
! wu? !
! wu? !

SAD SEARCH
VENOMIG SAGEN

- KLAVER
- PIANO

- KLAVER
 - KLOKKESKÅ
 - KLOKKESKÅ
- PIANO

Jane Pedersen



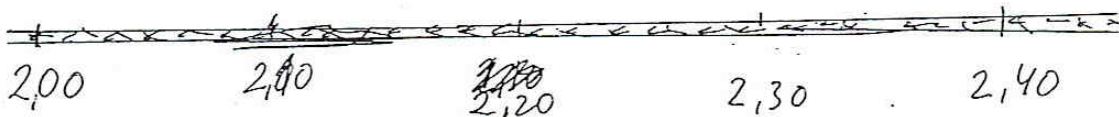
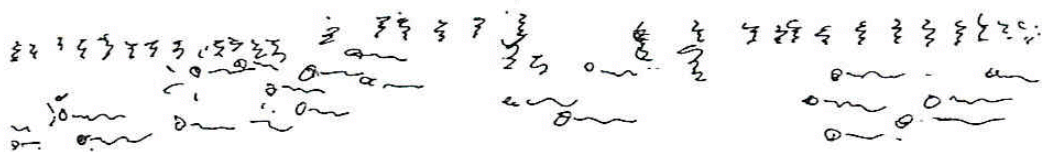
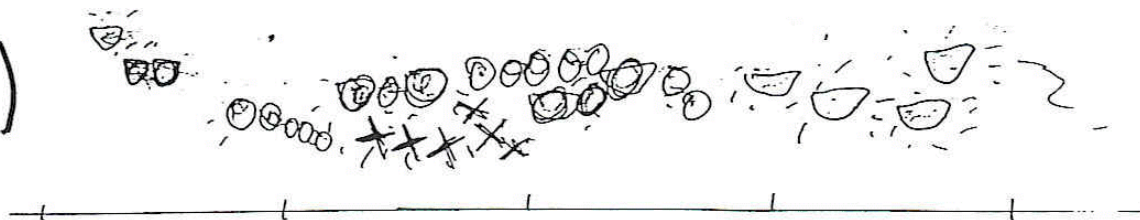
TIME
TOP

Ca. 60 sek.
about 60 seconds

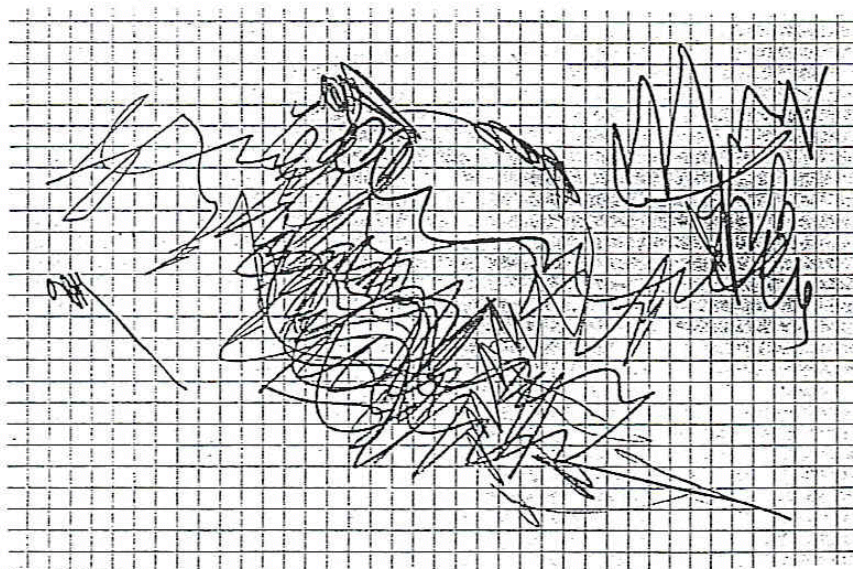
Ca. 45 sek.

Ca. 60 sek.

(4)



(5)



(6)

प्रगति मैदान,
नई दिल्ली

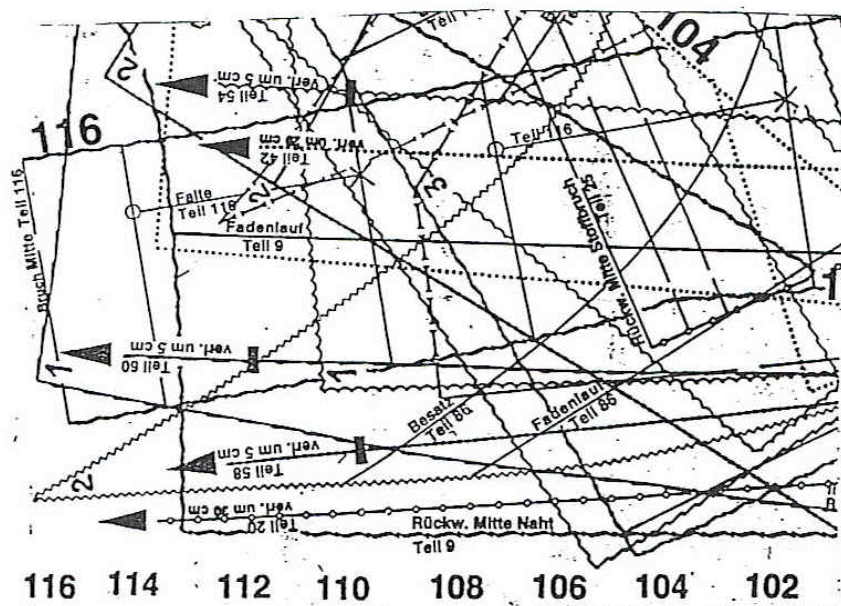
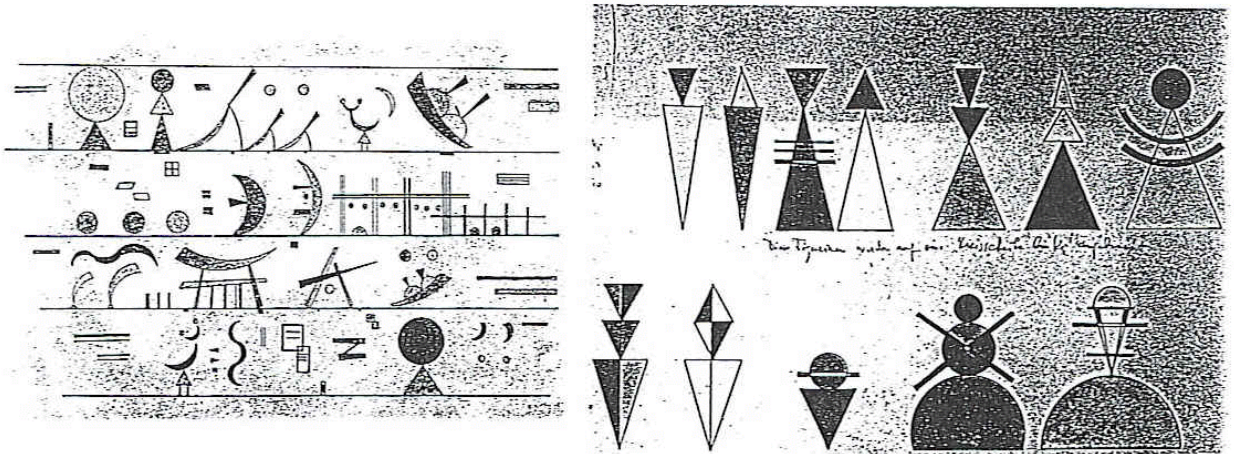


GRAFISK NOTATION

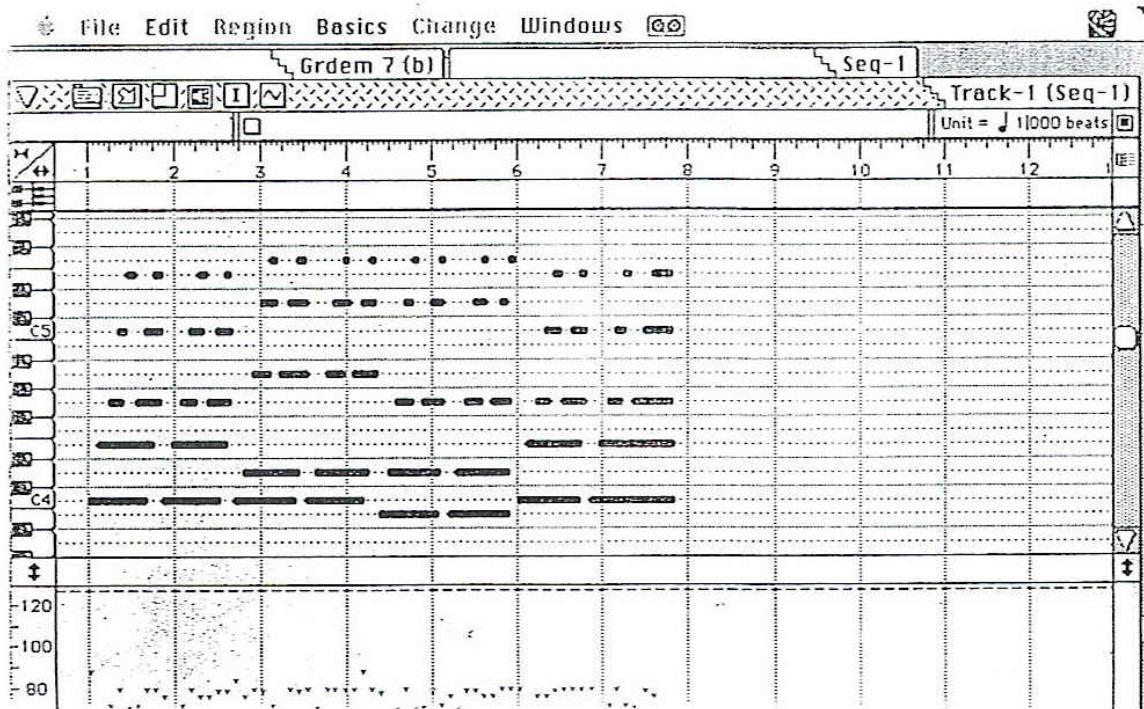
udskr.: 07/apr/92

(6→)

Rain Regn	Shower Byger	Snow Sne	Thunder Torden	Fog Tåge	Vind Vind	Vind Vind	Vind Vind	Vind Vind	east
					nordøst 5 m/s.	sydvest 10 m/s.	søndst 15 m/s.	søndst 15 m/s.	
Warm front Varmfront		Cold front Koldfront			Warm front caught up by cold front Varmfront indhentet af koldfront				



(7)



(8)



(HARDER)



(SOFTER)



"A SNAKE
- A MELODY"



HARMONICA
- BLOWING SOUND
ONLY

GRAFISK NOTATION

udskr.: 07/apr/92

(8 →)

HARMONICA - TONE WITH CRESCENDO

METALLOPHONE TONE

PIANO

PIANO, BASS REGISTER

SOFT

HARD

TWO VERSIONS OF "NOISY CHEWING SOUND"

SLAP

HARD ATTACKED SOUND WITH LONG RESONANCE

MAN'S VOICE GIVING A STRONG BLOW

MODERATE TEMPO

FASTER

MARCH

RUNNING

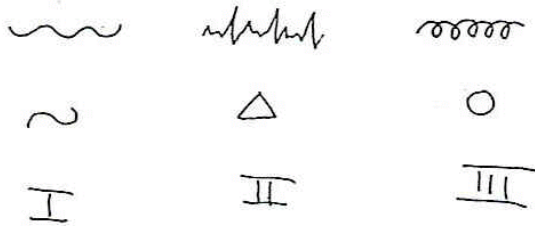
XYLOPHONE

PIANO

DRUM

THANKS TO ANNE WINTHÉR-RASMUSSEN, JANE PEDERSEN, MARIE MUNK-MADSEN, TINE BANG SPRENSSEN, THORKIL HOEGSBRO, SONJA PAULSEN, ANNE MAENG, BIRGITTE JESPERSEN. FOR QUOTATION OF THE ABOVE.

(9)



IS THIS EIGHTS OR TINY LITTLE SNOW MEN?

(10)

THE FIRST ONE IS AN EIGHT, THE NEXT TWO ARE SNOW MEN, THE NEXT IS AN EIGHT, AND THE LAST FOUR ARE SNOW MEN ...

88888888

ER DET OTTERE ELLER ER DET BITTESMÅ SNEMEND?

DET FØRSTE ER EN OTTER, DE NÆSTE TO ER SNEMEND, DEN NÆSTE ER EN OTTER, OG DE SIDSTE FIRE ER SNEMEND...

DER TOG JEG FUSEN PÅ DIG, HVA'?! I GOT YOU THERE, EH?!

SCHWITZ

(end of Graphic Notation) ///